REMARKS

Entry of the foregoing, reexamination and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

As correctly noted in the Office Action Summary, claims 3, 16 and 22-28 were pending. By the present response, claims 12 and 26 have been amended. Thus, upon entry of the present response, claims 3, 16 and 22-28 remain pending and await further consideration on the merits.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: paragraphs [0007], [0015]; Figure 2; and the original claims.

Entry of the forgoing is appropriate pursuant to 37 C.F.R. §1.116 for at least the following reasons. First, the amendments, which are for purposes of clarification, are not believed to alter the scope of the existing claims, and raise no new issues that would necessitate further search and/or substantive reexamination. Second, the amendments placed the application in better form for the appeal.

CLAIM REJECTIONS UNDER 35 U.S.C. §102

Claims 3, 16 and 22-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,278,400 to Yamarik et al. (hereafter "*Yamarik et al.*") on the grounds set forth on page 4 of the Official Action. For at least the reasons noted below, this rejection should be withdrawn.

The present invention is directed to a component of a fluid-flow machine. A component constructed according to the principles of the present invention provides

both a construction that facilitates inspection as well as reducing the danger of blockage of coolant holes by dust or other debris in the coolant flow. According to the present invention, through a combination of careful sizing and positioning, an inspection access aperture can also serve as a dust discharge aperture, thereby eliminating unnecessary apertures which can lead to undesired loss of cooling medium, thereby resulting in a loss of efficiency by the component. *See, e.g.* paragraph [0008] of the present specification.

A component constructed according to the principles of the present invention is set forth in claim 16. Claim 16 recites:

> *16. A component of a fluid flow machine, the component comprising:*
> *a leading edge and a trailing edge;*
> *a first coolant passage comprising at least one curved flow section configured to curve in a first flow direction to establish coolant medium flow in the first flow direction; and*
> *a second passage and a dust discharge aperture in communication with the second passage having a longitudinal axis essentially parallel to an axis of the fluid flow machine, the dust discharge aperture arranged at the trailing edge of the component and dimensioned to enable the introduction of a borescope through the dust discharge aperture and the second passage, and the second passage (i) branching off the coolant passage at the curved flow section and (ii) being arranged to extend in the first flow direction along a flow path which is tangential to the curved flow section.*

Yamarik et al. fails to anticipate the component as set forth above in claim 16.

Yamarik et al. is directed to a coolable rotor blade having a cooling structure based upon multiple coolant flow supply paths. The rotor blade construction disclosed therein includes a number of coolant passages, including tip cooling holes 58 which are disposed in communication with the blade tip passage 56. In the grounds of rejection, both 56 and 58 are incorrectly referred to as "the second passage." As evident from the above, claim 16 requires a component having a

construction which includes both "a second passage" as well as a "dust discharge aperture." The grounds rejection are deficient in that there is no element of the *Yamarik et al.* device that is identified as corresponding to the "dust discharge aperture" recited in claim 16.

With respect to the tip passage 56, this passage does not constitute a dust discharge aperture of any kind whatsoever. With respect to the tip cooling holes 58, as evident from the above, claim 16 additionally requires that "the dust discharge aperture . . . dimensioned to enable the introduction of a borescope through the dust discharge aperture." *Yamarik et al.* contains no disclosure whatsoever to indicate that the tip cooling holes 58 are of suitable dimensions that would enable the introduction of a borescope therethrough. Perhaps in acknowledgment of the lack of any express disclosure to satisfy this element of the claimed invention, it is asserted in the Official Action that:

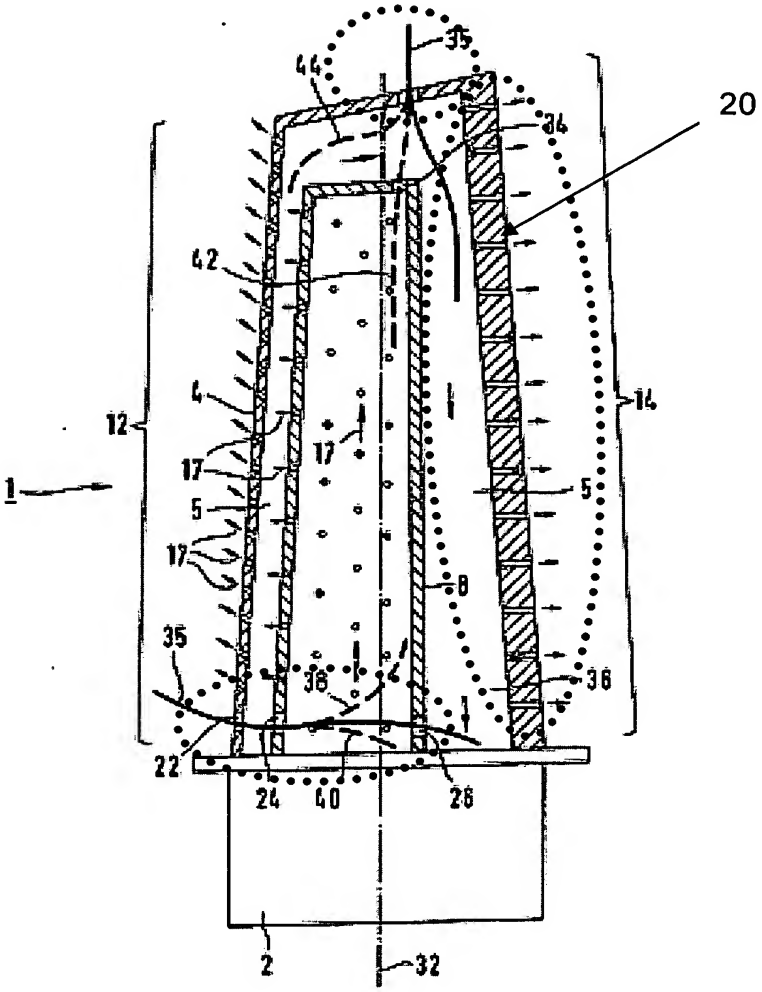
> . . . the second passage is capable of both acting as a dust discharge aperture, due to its tangential relationship with the curved passage and its radially outward location, as well as allowing for the introduction of a borescope there through.

First, it should be recognized that the above-quoted assertion is clearly founded on an assertion of inherency. As such, the elevated burden of establishing claimed features about which the asserted prior art is silent must be observed. Namely, the Federal Circuit has repeatedly stated that in order to establish the inherency of the missing element it must be shown that the missing element must necessarily be present in the reference, and would be recognized as such by those persons of ordinary skill in the art. *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ2d 1746, 1749-50 (Fed. Cir. 1991; *In re Oelrich*, 666 F.2d 578,581, 212 USPQ 323, 326 (C.C.P.A. 1981) ("inherency, however, may not be

established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient"); *Standard Oil Co. v. Montedison, S.p.A.*, 664 F.2d 356, 372, 212 USPQ 327, 341 (3d Cir. 1981) (for a claim to be inherent in the prior art it "is not sufficient that a person following the disclosure sometimes obtain the result set forth in the [claim]; it must invariably happen"). When examined under the appropriate legal standards set forth above, it is readily apparent that the assertions of inherency contained in the grounds rejection clearly fail to establish a *prima facie* case of unpatentability.

It would not be inherent (i.e., must necessarily be) that the tip cooling holes 58 described by *Yamarik et al.* are properly dimensioned so as to permit the introduction of a borescope therethrough. It is respectfully submitted that tip cooling holes 58 are known in the art as being too small to allow passage of a borescope, and thus are not inherently dimensioned so as to permit the introduction of a borescope therethrough.

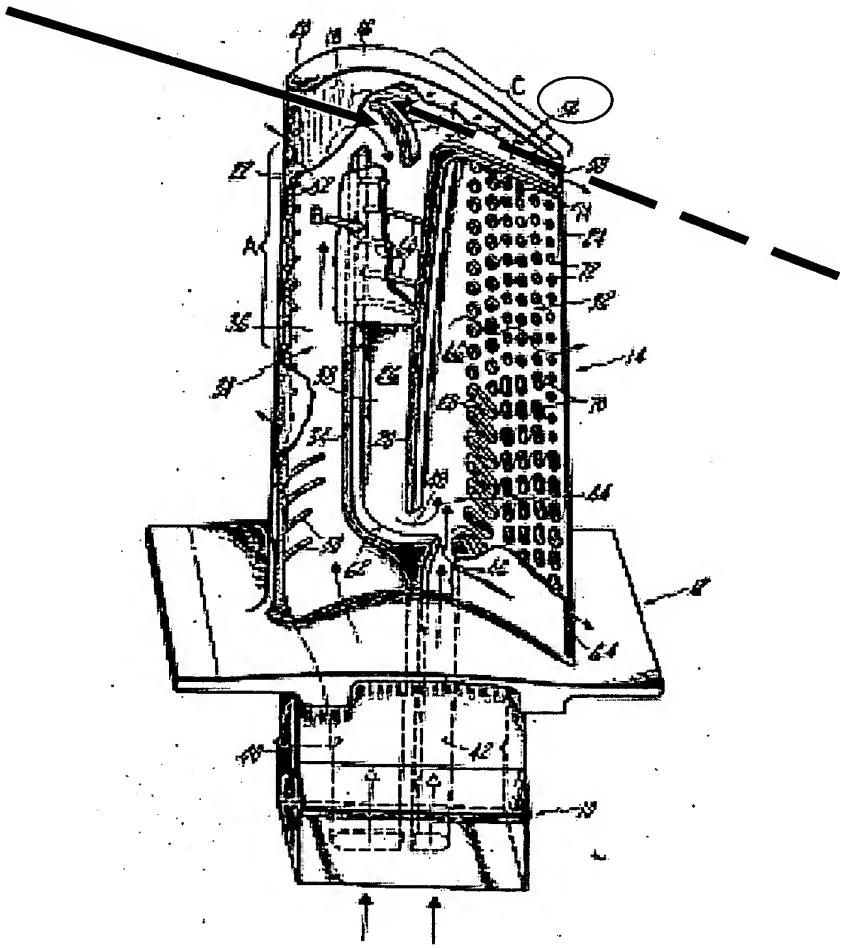
It is further asserted in the Official Action that the disclosure of DE 19801804 (hereafter "*DE '804*") supports the grounds rejection. In fact, the opposite is true. Namely, as readily apparent from the drawing Figure 2 of *DE '804* reproduced below, coolant holes of the type disclosed by *Yamarik et al.* (e.g., 58) do not have dimensions that are suitable to permit the passage of a borescope.



As apparent from the above, the coolant holes 20 in the trailing edge of the blade are significantly smaller than the passages 22, 24, 26 and 35 which permit passage of an inspection device (endoscope 35). Therefore, the disclosure of *DE '804* supports applicants' position that typical cooling holes disposed in the vicinity of a trailing edge of a rotor blade are not inherently dimensioned so that they can permit the passage of a borescope therethrough.

Claim 16 also recites that "the second passage . . . being arranged to extend in the first flow direction along a flow path which is tangential to the curved flow section" . As illustrated below, *Yamarik et al.'s* rotor blade shown in the Figure

includes a curved flow path indicated by a curved arrow. The curved flow path extends from the leading edge flow region 30 to the cavity 26 defined between the forward baffle 34 and the rearward baffle 28. The tip passage 56 is not tangential to this curved flow path because the turning vane 54 is positioned inside the rotor blade to guide the flow into the cavity 26, not in a direction tangential to the curved flow path as required by claim 16 (see, e.g., solid line arrow).



Thus, *Yamarik et al.* clearly fails to anticipate the component as defined by claim 16. Reconsideration and withdrawal of the rejection is respectfully requested

The remaining claims depend either directly or indirectly upon claim 16. Thus, these claims are also not anticipated by *Yamarik et al.* for at least the reasons noted above.

In addition, claim 24 requires, *inter alia*, "there is a straight line of sight from the dust discharge aperture through the second passage to the first portion of the third wall." Similarly, claim 25 requires "there is a straight line of sight through the second section to the first portion of the third wall." By contrast, and contrary to the assertions contained on page 3 of the Official Action, *Yamarik et al.* clearly fails to disclose a construction having the above-quoted "straight line of sight." The broken line arrow appearing in the drawing figure reproduced from *Yamarik et al.* above makes this abundantly clear. Thus, claims 24 and 25 are distinguishable over *Yamarik et al.* for at least these additional reasons.

Claim 26 recites, *inter alia*, that "particles entrained in the cooling medium pass through the first section, through the second passage and are discharged through the inspection aperture, while the cooling medium which is relatively free of particles flows through the second section" (emphasis added). In the component of claim 26, dirt particles entrained in the cooling medium are discharged, due to their inertia, through the dust discharge aperture. This discharge occurs due to the flow speed of the cooling medium at the curved flow section of the flow passage and the arrangement of the dust discharge aperture relative to the curved flow section. The particles, due to their mass and inertia, take the path through the dust discharge aperture and tend not to flow via the deflection into the "second section" of the flow passage and the further course of cooling air. As a result, there is relatively dust-free cooling air available for the further cooling of the component.

However, in *Yamarik et al.'s* rotor blade a portion of the cooling air required to cool the blade is admitted through the forward conduit 40. The cooling air admitted through the forward conduit 40 is mostly directed by the forming vane 54 down into passageway 26 and eventually through the passage 66. A significant portion of the particles entrained in the cooling air would remain on the inside of the turning vane 54 inside the rounded contour at the base 62, where the cooling air turns. Accordingly, applicants submit that the cooling medium that flows through the "second section" of the *Yamarik et al.* coolant flow structure would not be relatively free of particles. Therefore, claim 26 is distinguishable over Yamarik et al. for at least this additional reason.

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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